Work Order Bid (ID)

CAC Housing _Energy Services

CAC Housing &
Energy Services

WORK ORDER INFORMATION

Work Order Name: WO/80008KN1885/1
Work Order Type: Weatherization
Audit Name: 80008KN1885-Audit

CLIENT INFORMATION

Client ID: 80008KN1885

AGENCY INFORMATION

Agency: Knoxville- Knox County Community Action Agency
Address: (PO Box 51650) 2247 Western Avenue
Knoxville, TN 37950-1650

Agency Phone: (865) 244-3080
Fax: (865) 544-1647
Email Address:

Agency Contact: Jackson, Rocky

Work Phone: (865) 244-3080
Cell Phone:
Email Address: rocky.jackson@cachousing.org

Company Name & License Number: _____

Contractor's Signature: _____

COMMENT

Comments
Single Family Dwelling
Contractor to follow 2006 International Residential Code as adopted by the City of Knoxville or Knox County as applicable.
City-House age is 1981

Measures

Measure 1 **New Duct System** ***Components*** ***Inspected***

Comment

Includes complete duct system. Must perform an ACCA Manual D and submit with invoice. Must meet local codes. Duct to be installed with straightest and shortest route must be secured with straps to alleviate sagging, all joints to be sealed with liquid mastic. Must have a minimum of R-8 insulation around it. Tape with appropriate UL 181 tape. Liquid white Mastic to be applied to entire inside of boot to seal all seams. Top of boot where it meets subfloor to be taped with UL 181 Mastic tape. Boots to be insulated on outside of boot to R-8. This is best performed with 2-part close cell foam. No changes allowed. Refer to Appendix A- Standards for Weatherization Materials and Southeast Field Guide.

Refer to Attachment A-Standards for Weatherization Materials and Southeast Field Guide.

					Estimated			Actual	
#	Material / Labor	Description / Comment	Units	Qty	Unit Cost	Total	Qty	Unit Cost	Total
1	Labor	Labor Refer to Attachment A-Standards for Weatherization Materials and Southeast Field Guide.	Each	1					
1	Construction Mate	New Duct System	Each	1					

Other Detail

Measure Sub Total: ***Sub Total:***

Field Notes:

Measure 2 **Infiltration Redctn** **Components** **Inspected** ☐

Comment Reduce air infiltration with 3 air seals. Each air seal is equal to 100 cfms. It is the responsibility of the contractor to find the air leaks. This is best performed with a Blower Door. Contractor must meet or exceed the targeted #. A house must not be brought below 1500 cfm @ 50 pascals. No CHANGE ORDER for air seals below the targeted #.
"A" Ring, Front Door, Pre 2352 CFM @ 50 pascals. Target is 2052 CFM @ 50 PA

broken pane s2
Refer to Appendix A- Standards for Weatherization Materials and. Tennessee Weatherization Field Guide.

Weatherstrip d1
Remove old weatherstripping before installing new weatherstripping. Weatherstrips must be one solid
piece. Refer to Appendix A- Standards for Weatherization Materials and Southeast Field Guide.

				Estimated			Actual		
#	Material / Labor	Description / Comment	Units	Qty	Unit Cost	Total	Qty	Unit Cost	Total
1	Miscellaneous Su	broken pane	Each	1					
1	Labor	labor	Each	1					
2	Miscellaneous Su	weatherstrip	Each	1					
2	Labor	labor	Each	1					

Other Detail

Measure Sub Total: **Sub Total:**

Field Notes:

Measure **3 Lighting Retrofits** ***Components*** L1,L2,L3,L4,L5,L6,L7 ***Inspected*** ☐

Comment

Lighting
Replace incandescent light bulb with compact fluorescent bulb equal to the incandescent. Inform customers about proper recycling of fluorescent bulbs by stores, municipal waste departments, or other recycling organizations. Refer to Appendix A- Standards for Weatherization Materials and Tennessee Weatherization Field Guide.

					Estimated			*Actual*		
#	***Material / Labor***	***Description / Comment***	***Units***	***Qty***	***Unit Cost***	***Total***	***Qty***	***Unit Cost***	***Total***
1	Lighting	Compact Fl. - 13 Watt	Each Lamp	2					
2	Labor	Compact Fl. - 13 Watt	Each Lamp	2					
3	Lighting	Compact Fl. - 13 Watt	Each Lamp	3					
4	Labor	Compact Fl. - 13 Watt	Each Lamp	3					
5	Lighting	Compact Fl. - 13 Watt	Each Lamp	1					
6	Labor	Compact Fl. - 13 Watt	Each Lamp	1					
7	Lighting	Compact Fl. - 13 Watt	Each Lamp	1					
8	Labor	Compact Fl. - 13 Watt	Each Lamp	1					
9	Lighting	Compact Fl. - 13 Watt	Each Lamp	1					
10	Labor	Compact Fl. - 13 Watt	Each Lamp	1					
11	Lighting	Compact Fl. - 13 Watt	Each Lamp	1					
12	Labor	Compact Fl. - 13 Watt	Each Lamp	1					
13	Lighting	Compact Fl. - 13 Watt	Each Lamp	3					
14	Labor	Compact Fl. - 13 Watt	Each Lamp	3					

Other Detail

Measure Sub Total: *Sub Total:*

Field Notes:

Measure 4 **DWH Pipe Insulation** ***Components*** ***Inspected***

Comment Water Heater
Includes labor cost. Insulate the first 6 feet of hot and cold water pipe from water heater. Use pipe wrap with a
R-value of at least 2. Cover elbows , unions, and other fittings to the same thickness as pipe. All corners must be
Cut properly. Keep pipe insulation 6 inches away from single wall vent pipe and 1 inch away from Type B vent.
Interior diameter of pipe sleeve must match exterior diameter of pipe. Fasten with zip ties, tape, or other
approved method. Refer to Appendix A- Standards for Weatherization Materials and Tennessee Weatherization
Field Guide.

					Estimated			Actual	
#	*Material / Labor*	*Description / Comment*	*Units*	*Qty*	*Unit Cost*	*Total*	*Qty*	*Unit Cost*	*Total*
1	Insulation	DHW Pipe Insulation	Each	1					
2	Labor	DHW Pipe Insulation	Each	1					

Other Detail

Measure Sub Total: *Sub Total:*

Field Notes:

Measure 5 **DWH Tank Insulation** ***Components*** ***Inspected***

Comment

Water heaters should be re-insulated to at least R-10 with an external insulation blanket unless water heater label gives specific instructions not to insulate or the water heater is already insulated. Keep insulation at least 2 inches away from gas valve and burner access panel. Don't install insulation below the burner access panel .Flammable Vapor Ignition Resistant models have combustion intake vents that must be left open. Follow the manufacturer's instructions when installing insulation blankets on (FVIR) water heaters so to not damage unit. Don't cover the pressure relief valve and discharge pipe with insulation. Don't insulate the tops of gas fired water heaters to avoid obstructing drat diverter. Mark the blanket to locate the thermostat and heating element access plates or cut the blanket at these locations. When you cut the blanket , cut the bottom and the sides but not the top. This creates a flap that remains closed in place. Don't cover the pressure relief valve and discharge line. Cover the top of the water heater with insulation if it doesn't obstruct the pressure relief valve. Install three zip tie straps 1st 6" from the top 2nd in the Middle, 3rd- 6" from Bottom).

				Estimated			Actual		
#	Material / Labor	Description / Comment	Units	Qty	Unit Cost	Total	Qty	Unit Cost	Total
1	Hot Water Equipm	DHW Tank Insulation	Each	1					
2	Labor	DHW Tank Insulation	Each	1					

Other Detail

Measure Sub Total: ***Sub Total:***

Field Notes:

Measure **6 Attic Ins. R-38** ***Components*** A1 ***Inspected*** ☐

Comment

Attic Insulation
Includes labor cost. Contractor to install 1 ruler for every 300 square foot of attic space showing depth of insulation. Insulation should cover the entire area intended for insulation without voids or edge gaps. Blown insulation should be installed at sufficient density to resist settling, according to manufacturer's instructions .Loose fiberglass is blown in attics from 0.5 to 0.9 pcf and at that density the R-value is around 3.2 per inch. Loose cellulose is blown in attics from 0.6 to 1.2 pcf and at that density range , the R-value is around 3.7 per inch. Insulation should be protected from air migrating around and through it by an effective air barrier. Air sealing attics must precede attic insulation and this may require removing existing insulation and debris that currently prevent effective air sealing. Box around recessed light fixtures and exhaust fans to prevent overheating and/or fire. Install collars or dams around masonry chimneys, B-vent chimneys, and manufactured chimneys after sealing the air leaks around them. ✓ if rolled metal is used as a barrier around heat-producing devices or chimneys, it must be fastened securely to the ceiling joist so the barrier won't collapse. Barriers should extend at least 4 inches above the insulation and be secured to keep insulation a minimum of 3 inches away from the heat-producing device. ✓ All-fuel wood-stove chimneys should have ventilated insulation shields. Covering recessed light fixtures: Covering recessed light fixtures with fire-resistant drywall or sheet-metal enclosures reduces air leakage and allows insulation to be blown around the box. ✓ If you plan to cover an electrical junction box with insulation, mark its location with a sign, flag, or other marker.
Install baffles in every joist or truss bay to ensure no insulation enters the soffit area. Seal holes, gaps, and penetrations in attic before insulating. Seal around chimney with sheet metal and high temperature silicone or fire resistant foam. Install R-30 fiberglass batt secured to attic access and weather strip with foam tape. Contractor to install using Resnet Grade 1 Standards. Refer to Appendix A- Standards for Weatherization Materials and Tennessee Weatherization Field Guide. The addition of insulation in an existing home is a common weatherization measure. Whenever there is installation of any type of floor, wall, or attic insulation, the Contractor must provide a certificate. This certificate is referred to as a "receipt" in the Federal Trade Commission's (FTC) guidance. This will be effective with any job posted August 15th or later.

This certificate should be given to the Client and/or Owner of the property. In addition, a copy of the certificate must be posted at the property and a copy of the certificate must be inserted in the Client's file and retained at the Agency.

Points to remember about the Insulation Certificate:

•The copied certificate posted at the property should be secured to a rafter, stud, or joist. It must be in plain view and placed close to an opening of the crawl space or attic for accessibility.

•For wall insulation a certificate should be secured on a wall in the attic if possible.

•A certificate can combine areas where insulation was installed as long as the certificate reflects all information for each area.

•For roll insulation the certificate must clearly show all the coverage area(s) where the insulation was installed, thickness of the insulation, and the R-value of the insulation installed. The certificate must be dated and signed by the Insulation Contractor.

•For loose-fill insulation, the certificate must be dated and signed by the Contractor, show all the coverage area(s), initial installed thickness, minimum settled thickness, R-value, and the number of bags used.

•Although this insulation has not been approved by DOE for insulating use in the WAP, per the FTC, spray foam insulation certificate must be signed and dated by the Contractor, show all the coverage area(s) of the insulation and the R-value of the insulation installed.

•For aluminum foil, the receipt must show all the coverage area(s), the number and thickness of the air spaces, the direction of heat flow, and the R-value.

When providing the insulation certificate, Contractors who install insulation must comply with federal regulation 460.17.

§ 460.17 What installers must tell their customers.

If you are an installer, you must give your customers a contract or receipt for the insulation you install. For all insulation except loose-fill and aluminum foil, the receipt must show the coverage area, thickness, and R-value of the insulation you installed. The receipt must be dated and signed by the installer. To figure out the R-value of the insulation, use the data that the manufacturer gives you. If you put insulation in more than one part of the house, put the data for each part on the receipt. You can do this on one receipt, as long as you do not add up the coverage areas or R-values for different parts of the house. Do not multiply the R-value for one inch by the number of inches you installed. For loose-fill, the receipt must show the coverage area, initial installed thickness, minimum settled thickness, R-value, and the number of bags used. For aluminum foil, the receipt must show the number and thickness of the air spaces, the direction of heat flow, and the R-value.

Cut in the ceiling an attic access door 22" x 30". If unable to achieve, then opening must be equal to 660
square inches 22" x 30". An attic access door is installed as a complete unit. A door is inclusive of foam
seal, trim, paint (1st quality semi gloss color to be chosen by homeowner, caulk, and R-30 Batt
insulation. Build an insulation dam around the attic access hatch. Insulate the hatch to R-30 value. Build the dam
with rigid materials like plywood or oriented strand board so the dam supports

the weight of the person entering
or leaving the attic. Weatherstrip the attic access to air seal the access and provide uninterrupted air barrier
between the attic and conditioned space. It is the best practice to seal hatches in the unconditioned space such as
carports and attached garages and stairwells. All attic hatches must have a locking device that securely hold the
access in place and slightly compresses the weatherstripping.. Do not cut the framing member to install a hatch
without approval from a local agency, a structural engineer, and local codes enforcement if applicable. The
dam's purpose is to prevent loose-fill insulation from falling out of the attic hatch when opened. Install latches,
sash locks, gate hooks or other positive closure to provide substantially airtight hatch closure. No changes allowed
. Refer to Appendix A- Standards for Weatherization Materials and Tennessee Weatherization Field Guide.

				Estimated			Actual		
#	Material / Labor	Description / Comment	Units	Qty	Unit Cost	Total	Qty	Unit Cost	Total
1	Insulation	Attic Insulation - Cellulose, Blown - R-38	SqFt	1300					
1	Labor	Attic Insulation - Cellulose, Blown - R-38	SqFt	1300					
2	Miscellaneous Su	attic access	Each	1					
2	Insulation	labor	Each	1					
3	Miscellaneous Su	baffles	Each	50					
3	Labor	labor	Each	50					

Other Detail

Measure Sub Total: **Sub Total:**

Field Notes:

Measure 7 **Install/Replace Heatpump** ***Components*** H1,AC1,AC2 ***Inspected***

Comment

HVAC
Includes labor cost. Must be installed by a licensed mechanical contractor. Must perform an ACCA Manual J and submit with invoice. Must be equal to Amana or Goodman 13 Seer Split Heat Pump, 10KW emergency heat. Size is approximately 1.5 ton. Final size will be determined by the Director of Housing. If size on ACCA Manual J is different from this write up, contact CAC before install for approval.

Install thermostat. Must educate client on operation of thermostat.

Contractor to provide client warranty information at inspection.

				Estimated			***Actual***		
#	***Material / Labor***	***Description / Comment***	***Units***	***Qty***	***Unit Cost***	***Total***	***Qty***	***Unit Cost***	***Total***
1	Heating Equipmen	Heatpump 1.5 Ton Split System	Each	1					
2	Labor	labor	Each	1					

Other Detail

Measure Sub Total: ***Sub Total:***

Field Notes:

Measure 8 Storm Windows **Components** N1,E1,E2,W1,S1,S2 **Inspected** ☐

Comment

Windows
Includes labor and material. Refer to House diagram for estimated measurements. Responsibility of contractor to verify measurements in the field before ordering window(s). Contractor to include the thermal break, caulking, framing, and any other related items to convey a completed measure. Storm Windows should be sized correctly and fit tightly in the opening. Caulk storm windows around the frame except for weep holes at the bottom that must not be sealed. If weep holes are not manufactuered into the storm they should be drilled. Don't allow storm windows to restrict or ventilation through movable windows .Choose windows that are openable from the inside or install pin on storm sashes that open along with the moveable primary window..Replacement windows must have a U-Factor less than or equal to U-0.35 as rated by the National Fenestration Rating Council or approved equal.

Refer to house diagram with window sizes. Responsibility of contractor to verify measurements in the
field before ordering window . Refer to Appendix A- Standards for Weatherization Materials
and Tennessee Weatherization Field Guide.

				Estimated			Actual		
#	Material / Labor	Description / Comment	Units	Qty	Unit Cost	Total	Qty	Unit Cost	Total
1	Windows	Storm Window	SqFt	72.08					
1	Other	Storm Window/labor	Each Window	6					

Other Detail

Measure Sub Total: **Sub Total:**

Field Notes:

Measure 9 CO Monitor is Needed **Components** Inspected ☐

Comment Refer to Appendix A- Standards for Weatherization Materials and. Tennessee Weatherization Field Guide.

#	Material / Labor	Description / Comment	Units	Estimated Qty	Estimated Unit Cost	Estimated Total	Actual Qty	Actual Unit Cost	Actual Total
1	Health and Safety	CO monitor	Each	1					
2	Labor	Labor	Each	1					

Other Detail

Measure Sub Total: Sub Total:

Field Notes:

Measure 10 Fix Improper Venting (Clothes Dryer) **Components** Inspected ☐

Comment

Dryer Vents installed with damper. Metal pipe installed without any fasteners protruding through pipe.
Must be vented to outside of home. No changes allowed. Refer to Attachment A- Standards for Weatherization Materials and Tennessee Weatherization Field Guide.

#	Material / Labor	Description / Comment	Units	Estimated Qty	Estimated Unit Cost	Estimated Total	Actual Qty	Actual Unit Cost	Actual Total
1	Health and Safety	Dryer Vent w/ Metal Piping (upto 15' in length)	Each	1					
2	Labor	Labor	Each	1					

Other Detail

Measure Sub Total: Sub Total:

Field Notes:

Measure 11 Fix Ventilation Inadequate (Attic) (Gable Vent) 20* 34 — ***Components*** — ***Inspected*** ☐

Comment

Gable Vents installed to achieve Net Free Ventilating Area of 1/300 of the area of
space being ventilated.1/2 high and 1/2 low. No changes allowed. Refer to Appendix A- Standards for
Weatherization Materials and Tennessee Weatherization Field Guide.
NOTE: Do not install roof vents on front part of house.

					Estimated			Actual	
#	Material / Labor	Description / Comment	Units	Qty	Unit Cost	Total	Qty	Unit Cost	Total
1	Health and Safety	Gable Vent	Each	1					
2	Labor	Labor	Each	1					

Other Detail

Measure Sub Total: ***Sub Total:***

Field Notes:

Measure 12 Fix Wiring Problems Water Heater — ***Components*** — ***Inspected*** ☐

Comment Install wiring on water heater in covered box or compartment on water heater so water heater can be safely insulated.
Refer to Appendix A Standards for Weatherization
Materials and Tennessee Weatherization Field Guide.

					Estimated			Actual	
#	Material / Labor	Description / Comment	Units	Qty	Unit Cost	Total	Qty	Unit Cost	Total
1	Health and Safety	Fix Wiring Problems Water Heater	Each	1					
2	Labor	Labor	Each	1					

Other Detail

Measure Sub Total: ***Sub Total:***

Field Notes:

Measure 13 PressureRelief Piping Needed **Components** **Inspected**

Comment

A water heater must have a pressure-and-temperature relief valve and a safety discharge pipe. Install a relief valve and discharge pipe if none exists. The discharge pipe should terminate 6 inches above the floor or outside the dwelling as specified by local codes. The discharge pipe should be made of rigid metal pipe or approved high temperature plastic pipe.

					Estimated			Actual		
#	Material / Labor	Description / Comment	Units	Qty	Unit Cost	Total	Qty	Unit Cost	Total
1	Health and Safety	Pressure relief piping	Each	1					
2	Labor	Labor	Each	1					

Other Detail

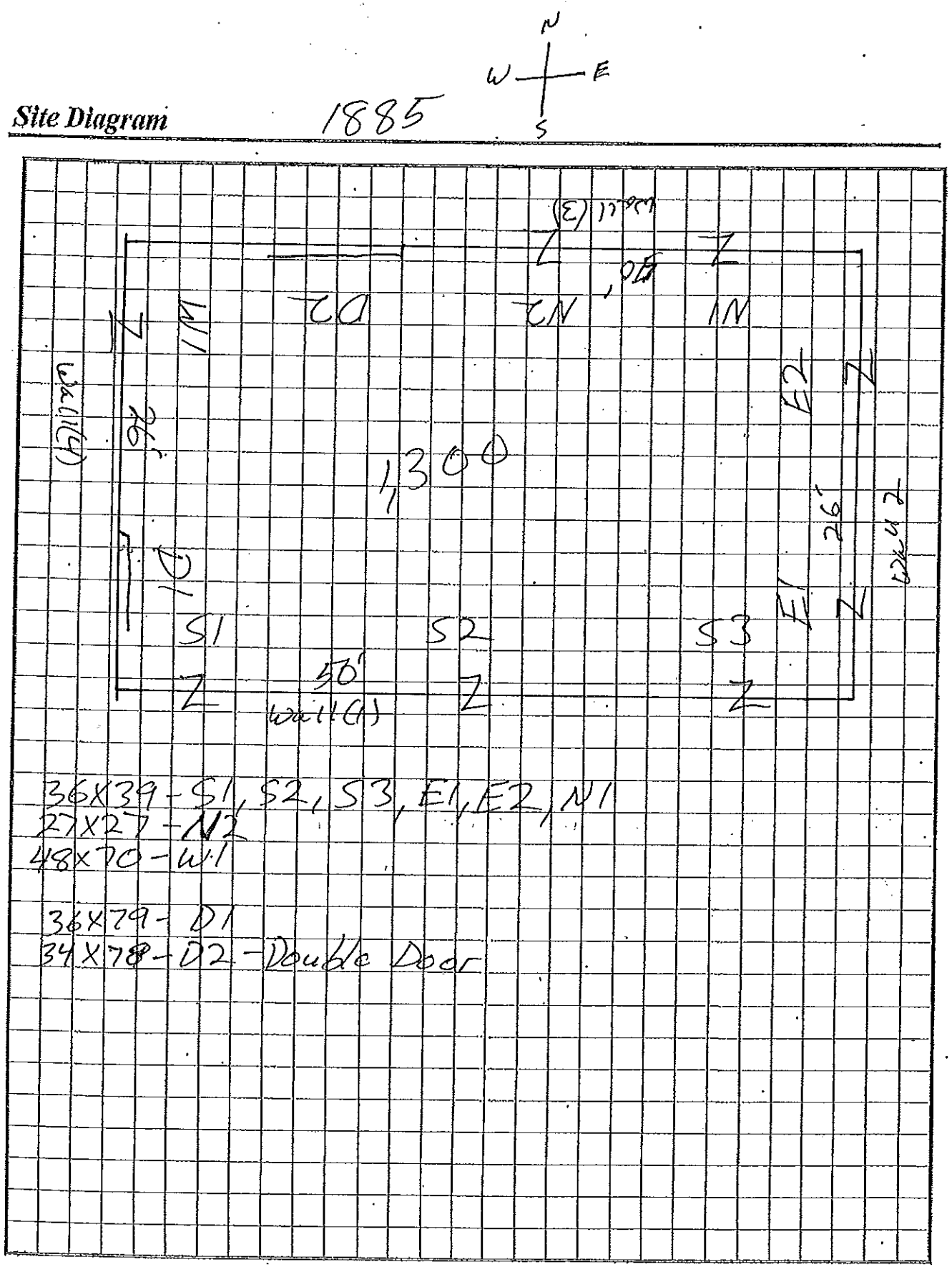
Measure Sub Total: **Sub Total:**

Field Notes:

Work Order Grand Total: **Grand Total:**

Site Diagram

1885



36X39 - S1, S2, S3, E1, E2, W1
27X27 - W2
48X70 - W1

36X79 - D1
34X78 - D2 - Double Door

Site Diagram

1885